

Claims

- 1) Process for the preparation of an hypoallergenic mosaic antigen derived from an allergen whereby
 - a) in a first step the allergen is split into at least two parts and the IgE reactivity of each part is determined and
 - b) in a second step those parts of the allergen which have no detectable IgE reaction are combined to a mosaic antigen which comprises the amino acids of the allergen but the order of the amino acids of the mosaic antigen is different from that of the naturally occurring allergen.
- 2) Process according to claim 1 wherein in the first step at least two parts of the allergen are prepared by chemical synthesis or by using the polymerase chain reaction and each part of the allergen is separately reacted with serum obtained from allergic individuals and the reactivity of IgE antibodies contained within such serum with each part of the allergen is determined.
- 3) Process according to claims 1 or 2 wherein the order of the parts of the allergen having no substantial reactivity with IgE antibodies obtained from allergic individuals does not correspond with the order of those parts in the naturally occurring allergen insofar as the part normally occurring at the N-terminus and the part normally occurring at the C-terminus are replaced by each other.
- 4) Process according to any of the preceding claims wherein the allergen is a group 2 allergen.
- 5) Process according to any of the preceding claims wherein the allergen is the timothy grass pollen allergen Phl p 2.

- 6) Process according to claim 5 wherein the allergen Phl p 2 is split into three peptides, namely peptide 1 having amino acids 1-33, peptide 2 having amino acids 34-64 and peptide 3 having amino acids 65-96 of the amino acid sequence of naturally occurring Phl p 2 and the mosaic antigen is provided by linking the peptides in the order peptide 1, peptide 3 and peptide 2.
- 7) Mosaic allergen having the amino acid sequence of SEQ ID NO:1.
- 8) DNA sequence having SEQ ID NO:2 coding for the mosaic allergen of claim 7 or a sequence complementary thereto.
- 9) Use of a mosaic allergen obtainable by a process according to any one of claims 1-6 for the preparation of a medicament for the treatment of an allergic reaction.
- 10) Use of a mosaic allergen according to claim 9 wherein the allergic reaction is caused by grass pollen.
- 11) Use of a mosaic allergen according to claim 10 wherein the allergic reaction is caused by timothy grass pollen.
- 12) Use of a mosaic allergen according to claim 11 wherein the allergic reaction is caused by timothy grass pollen Phl p 2.
- 13) Vaccine for the treatment of allergic patients characterized in that it comprises a mosaic allergen obtainable by any process according to claims 1-6 or the mosaic allergen of claim 7.
- 14) Vaccine for the treatment of grass pollen allergic patients characterized in that it comprises a DNA sequence coding for a mosaic antigen obtainable by a process according to any of claims 1-6 or the DNA of claim 8 or sequences complementary to any of these DNA sequences.